2018-00754 - Research Engineer / Robotics and software engineering

Level of qualifications required: Graduate degree or equivalent
Function: Temporary scientific engineer
Level of experience: Recently graduated

Context
This position is part of the ResiBots ERC project (http://www.resibots.eu), which aims at proposing novel trial-and-error learning algorithms (machine learning and reinforcement learning) so that robots can continue their mission even if they are damaged. All the algorithms are tested on real robots. Many examples of experiments are available online: http://members.loria.fr/jbmouret/videos.html

This project is funded by the European Research Council (ERC) from May 2015 to April 2020. The team is made of one research director (JB Mouret), 2 post-doctoral researchers, 2 engineers, 2 PhD students, and 2-3 master students.

The objective of the position is to develop and maintain the robots, their software, and the experimental setups necessary for the scientific experiments of the project. This includes developing new systems for the robot (e.g., integrate a new sensor to an existing robot), the refactoring of the research code designed for scientific papers (e.g., prepare demonstrations, design a library using the research code), and the improvement of the existing platforms (improve mechanical parts, improve the stability of the software, etc.).

Most of the code developed in the project is (and will be) available on github with an open source license (http://www.github.com/resibots)

Assignment
The owns currently:

- two 6-legged robots
- one wheel-legged hybrid robot (to be updated)
- one humanoid robot (iCub)
- one quadruped robot (minitaur)
- one mobile manipulator (Kuka YouBot + arm)

These robots are interfaced through the ROS framework, except iCub (YARP).

Photos are available here: https://members.loria.fr/jbmouret/robots.html

The team also owns a motion capture system (Optritrack).

The hired engineer will be in charge of maintaining and improving all these platforms (software and sometimes hardware), as well as writing the interface code required for the scientific experiments.

More generally, the engineer will be part of the research team and will facilitate the research by addressing the technical challenges implied by using experimental robots. She/he must be autonomous.

Main activities
Main activities:

- develop code for the robots of the team
- design new parts for the robot
- help the members of the team to perform their experiments
- maintain and develop the documentation

Additional activities:

- choose new hardware to be ordered when necessary

General Information

- Theme/Domain: Robotics and Smart environments
- Town/city: Villers-lès-Nancy
- Inria Center: CRI Nancy - Grand Est
- Starting date: 2018-06-01
- Duration of contract: 1 year, 11 months
- Deadline to apply: 2018-05-31

Contacts

- Inria Team: LARSEN
- Recruiter: Mouret Jean-baptiste / jean-baptiste.mouret@inria.fr

The keys to success

The ideal candidate loves robots and loves solving complex challenges in a creative way. She/he like hardware platforms and ‘tinkering’ with them.

She/he has a master in robotics, computer science, or a related field.

About Inria

Inria, the French National Institute for computer science and applied mathematics, promotes "scientific excellence for technology transfer and society". Graduates from the world's top universities, Inria's 2,700 employees rise to the challenges of digital sciences. With its open, agile model, Inria is able to explore original approaches with its partners in industry and academia and provide an efficient response to the multidisciplinary and application challenges of the digital transformation. Inria is the source of many innovations that add value and create jobs.

Conditions for application

Defence Security:
This position is likely to be situated in a restricted area (ZRR), as defined in Decree No. 2011-1425 relating to the protection of national scientific and technical potential (PPST). Authorisation to enter an area is granted by the director of the unit, following a favourable Ministerial decision, as defined in the decree of 3 July 2012 relating to the PPST. An unfavourable Ministerial decision in respect of a position situated in a ZRR would result in the cancellation of the appointment.

Recruitment Policy:
As part of its diversity policy, all Inria positions are accessible to people with disabilities.

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Skills

Technical skills and level required:

- good C & C++ skills
- ROS
- basics of CAD design (SolidWorks, OpenSCAD)
- basics of electronics (e.g., using Arduino)
- bases de Python, git, cmake
- "improvise" solutions when needed

Languages:

- English (English is the official language of the team)
- basic knowledge of French is useful (but not required)

Benefits package

- Subsidised catering service
- Partially-reimbursed public transport
- Social security
- Paid leave
- Flexible working hours

Remuneration

From 2632,00€ brut per month